





# VARIABLE REFRIGERANT FLOW (VRF)

Air Conditioner

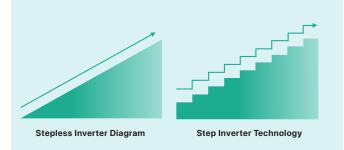
## **Stepless Inverter Technology**

Acson AVR Alpha use the advanced stepless inverter technology, which enables the system to respond rapidly and run stably.

- Ensure the stability of the exhaust pressure and suction pressure of the unit
- Ensure the dynamic distribution of the refrigerant flow is more stable with smaller fluctuation during system operation.
- Enable the system to respond in order to enhance its stability and realibility.

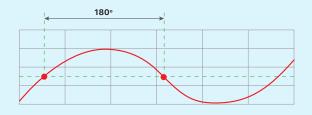
#### **Long Piping Applications**

AVR Alpha could provide a degree of stepless capacity loading. Making our Variable Refrigerant Flow (VRF) lineup is versatile and have wide capacity range.



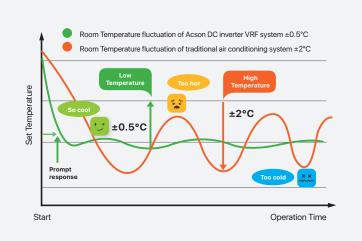
## Advance 180° Vector Inverter Control Technology

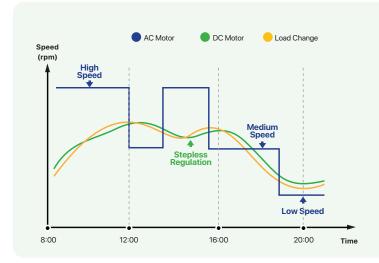
DC inverter controller generates a smooth 180° sinusoidal waveform. The stator coil of the compressor form a steady rotating magnetic field constantly, and keeps the compressor always running stably from a low speed to a high speed, thereby effectively reducing the vibration and noise of the compressor.



## **Greater Comfort, Better Accuracy and Stable System**

Another special characteristic for inverter system, they are more stable when it comes to temperature control compare to non-inverter system. This minimal temperature fluctuation is vital in providing room comfort.





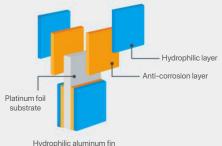
#### Stepless Inverter Technology-Outdoor Unit

Outdoor unit fan motors use the DC variable speed motors, which greatly improve the operation efficiency. The speed of outdoor unit fan motors can be regulated with the change of the ambient environment to implement stepless variable speed regulation, making the system run precisely.

## **High Efficiency Heat Exchanger**

One of the major component of any direct expansion system is the heat exchanger, the performance of a said system depends on it. Here is the closer look of our variable refrigerant flow heat exchanger:





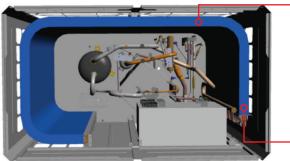


loss fin



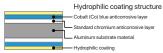
Integrated G-type heat exchanger

- The reasonable integrated three-surface heat exchanger can fully use the unit space and expand the heat exchange area to improve the heat exchange efficiency significantly.
- The reasonable integrated G-type heat exchanger features compact structure, high strength, easy to install and maintain. It is more safe and reliable because less solder joints are required.
- The copper tube adopts small diameter design to implement a higher flow rate and more heat exchange.
- The hydrophilic aluminium fins reduce corrosion occurring on the heat exchanger and improves the heating and cooling performance of the unit.



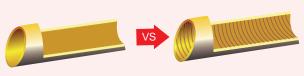
#### **Integrated G-type Heat Exchange Structure**

 Enlarging the heat exchange area and improving the heat exchange efficiency



#### **New Hydrophilic Aluminum Fin**

The corrosion-resistant hydrophilic aluminum foil can eliminate condensate water effectively.



#### Common bare pipe

The inner surface of common bare pipe is smooth, so the contact area with refrigerant is small and the heat exchange efficiency is relatively low.

#### Inner-grooved copper tube

Acson adopts the highly efficient inner-grooved copper tube with a large surface area and efficient heat exchange performance.



The heat exchange efficiency is lower as the frost and water cling to



#### Corrugated Fin

The frost is only attached to the outer surface of the fin, which can be removed more expeditious. The streamline design in the vertical direction is conducive to the frost water removing.

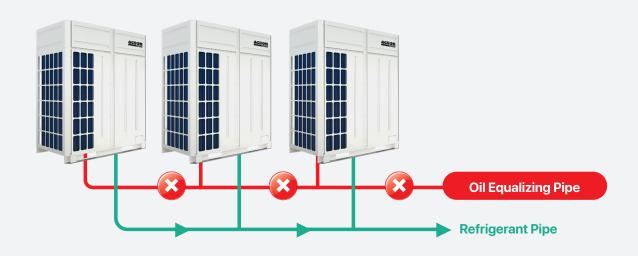
#### **Ecosystem Friendly**

Similar to our Ecocool lineup, our AVR series use R410A refrigerant. Which at the moment the most probable line-up as R22 refrigerant lineup. It does not deplete the ozone and pose any hazardous threat that most non-ODP refrigerant do. As a responsible corporate, our line-up is also RoHs compliance.



#### **Patented Oil Return Technologies**

One of the core design that was input to the design of the system is the oil return. It is vital because the compressor need sufficient oil for it to function effectively. Our system is so efficient that it does not require oil balancing pipe. From the software, we have a smart oil distributing to hardware, we have highly efficient oil separator.

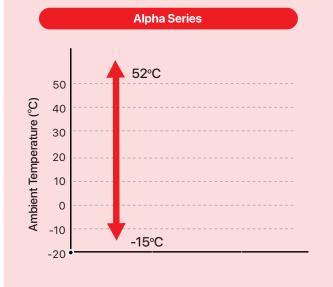


#### **Efficient Oil Separator**

The oil separator adopts the efficient centrifugal rotating guide design. After entering the oil separator, the high pressure gas emitted from the compressor forms a high speed rotating air flow. Due to functions of the centrifugal force and gravity, the mixed gas of high pressure refrigerant and oil separates the relatively heavy lubricating oil from the refrigerant gas, and makes it flow to the oil separator device along the inner wall of cylinder. In this way, oil is separated efficiently.

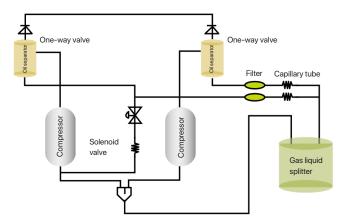
# Air outlet pipe Air outlet pipe Connected to the oil return capillary tube

# Wide Temperature Range Unique operating range:



#### **Patented Two Stages Smart Oil Return Technologies**





#### **Level 1 Oil Separation & Recovery**

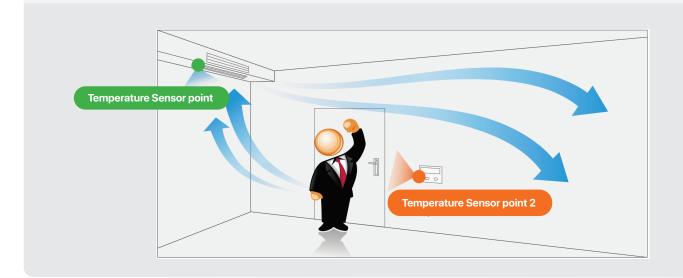
The first stage of oil separation occur within the compressor itself using the oil and gas separator and oil return pipe. Almost all of the oil is recycle back into the compressor after it left the compressor, by doing so we can ensure the oil remain in the compressor.

#### **Level 2 Oil Separation & Recovery**

After leaving the compressor, there is residue of the oil that left together with the refrigerant. It is still vital to recover the oil back because as time goes. These oil will eventually trapped within the pipe rather than within the compressor where it is needed. Thus, an external oil separator is used to further recover this residue of oil. Maximizing both the service life and efficiency of the unit.

#### **Two Sensor Point**

By default, the sensing point for the unit is built in within the unit. However, the comfort level perceived by the occupants in the system might be different. Therefore, we have a built in function that can allow us to choose the location of sensing. Enabling the system to be able to provide a more accurate and comfort environment to the occupants.



#### **Smart Room**

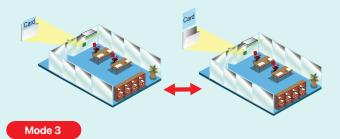
Be it hotel operators or smart home aspirant, our AVR system is capable to perform such function. With a simple card detector or a sensory device such as infrared or sound sensor. We can design the air conditioning system to be operating as if it is self-conscious.

#### Mode 1

When the user enters the room, the air conditioner with the inserted card is in the standby status. The user can use the controller to start the air conditioner; the user unplugs the card when leaving the room and the air conditioning unit is powered off automatically, which avoids unwanted electricity waste when the user forgets to power off the unit before leaving.

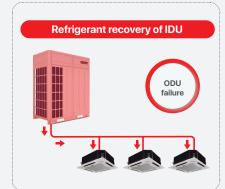


When entering the room, the user inserts the card to directly power on the air conditioning unit for operation. When leaving, the user unplugs the room card, and then the air conditioning unit powers off automatically.





The smart room card interface can also implement multiple power-on/off functions, e.g., the external module can be used to power on/off the air conditioner through modes such as sound control or infrared sensing.



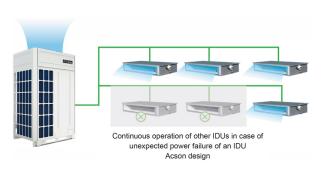


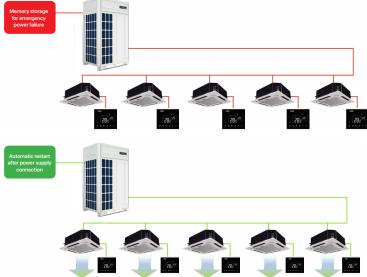
#### **Recovery of Refrigerant**

When the IDU, ODU or connection pipeline needs to be maintained, refrigerant is recovered through operation of the unit to reduce the waste of refrigerant and lower the maintenance cost.

#### **System Restore**

Should one of the indoor unit experience power failure, our system will bypass it and continue to operate. Once the power resume, the unit resume operation of prior setting just before the power failure.





#### **System Redundancy**

Our AVR system uses a lot of sensors, switches, program logics and so on to provide a reliable system redundancy. This make our unit more resilient, a single component failure might not cause total failure. This enable user able to operate the system albeit not in full capacity while wait for the system to be rectified.











- 1 Compressor/fan overload protection
- 2 High/low pressure protection
- Over-high temperature protection of air exhaust/return
- 4 Power protection
- 5 Inverter failure protection
- 6 Over-high/low ambient temperature protection
- 7 Refrigerant leakage protection

#### **Compressor Backup Operation**

For ODU with multiple compressor, the compressor can be operated separately. When any compressor fails, the other will still operate like normal.

#### **Inter-module Redundancy Feature**

For Alpha series, it is possible for a system to have multiple outdoor units (ODUs). When a module failed, the other module will still operate.

#### **Fan Redundancy Feature**

While for models with dual fan, either fan that are in operation is suffice for the system to continue its operation.

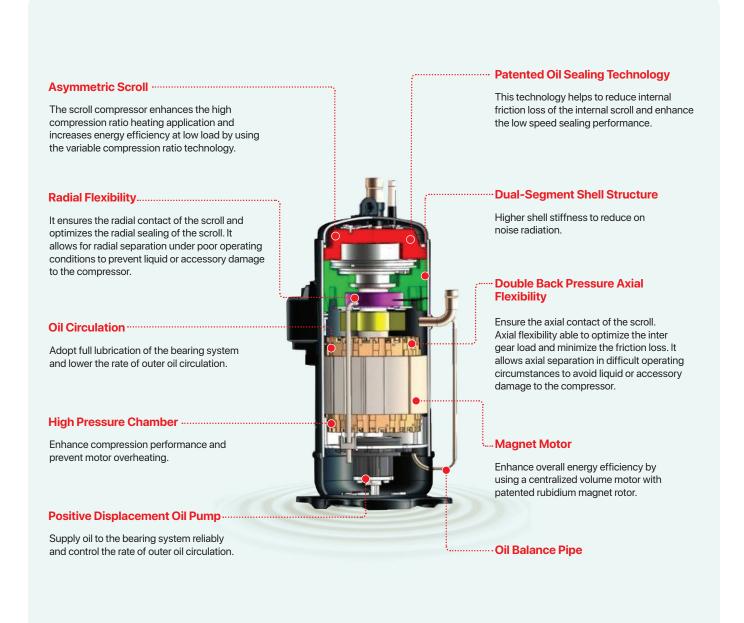


## **AVR Alpha Unique Features**

Acson AVR Alpha is a versatile air-conditioning line-up that suit the most for commercial and industrial usage. It employs scroll compressors which are powerful and yet compact in size. It is the ideal choice for modern buildings as it can be integrated into the most diverse and inventive structures

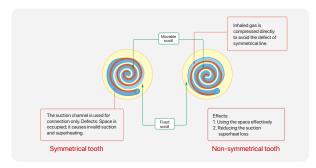
#### **High Efficiency Inverter Scroll Compressor**

Acson Inverter Variable Refrigerant Flow Alpha unit adopts high pressure chamber compressor with high performance and low sound level. In comparison to low pressure chamber scroll compressor, high chamber scroll compressor uses the asymmetric scroll design and a new generation inverter motor to provide brand-new air conditioner experience. The compressor boosts highly efficient operation, long service life, excellent stability, high efficiency, and low sound level.



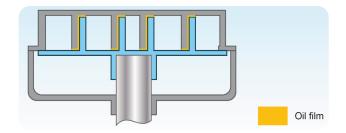
#### **Asymmetric Scroll Design**

The asymmetric scroll design implements dynamic continuous compression of refrigerant, efficiently reducing the leakage loss during compression and improving the operating efficiency and reliability of compressor.



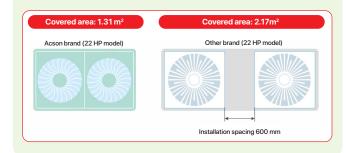
#### **Thin Oil Film Lubrication Technology**

The pressure differential between the dynamic and fixed scrolls is used to generate an oil film on contact surface, which reduces friction, operation noise, and mechnical loss. This in turn ensure better efficiency, stable operation and service life of the unit.



#### **Compact Design**

For modular design, Acson AVR require lesser foot print compare to most of the modular currently available. Making it an ideal choice for retrofit, replacement or applications that have minimal space for outdoor unit.



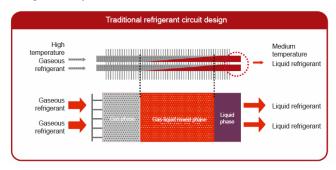
#### **Outdoor Unit with Multiple Static**

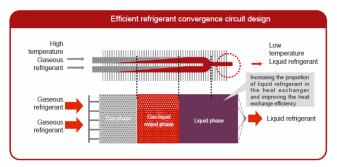
To further enhance its versatility, Alpha lineup can fitted with different motor (0/30/50/85 Pa). For tight spaces, the ODU discharge air can be directed to have a better ventilation and heat dissipation.



#### **Efficient and Effective Refrigerant Path Design**

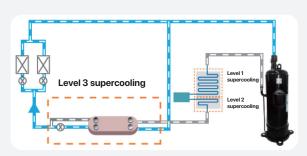
The heat exchanger design is differ than conventional design, so that it able to cool the high temperature faster and more liquid refrigerant is distributed throughout the system.





#### 3 Supercool Stages

The equipment used in Alpha is more sophisticated due to the scale of cooling capacity of the unit.

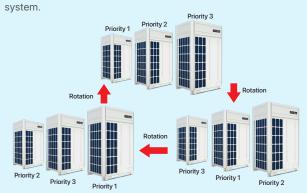


The stainless steel brazed plate heat exchanger has a small volume, and the internal heat exchange groove can strengthen the turbulent flow Of heat exchange greatly and ensure small heat loss of heat exchange and higher heat exchange efficiency under the same area.



#### **System Rotation & Redundancy**

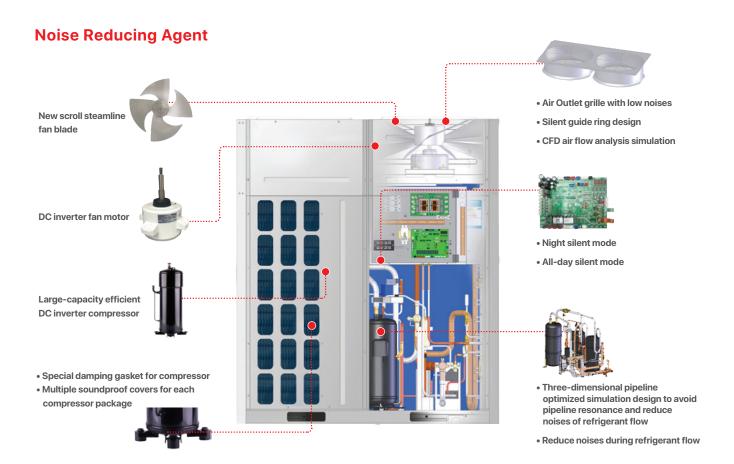
One of the advantages of having multiple module is it is possible for the system to rotate between each module and compressor. By operating the least operating unit, we can extend the service life of the entire system and enhancing the reliability of the system.



#### **Emergency Stop**

One of the criteria that need to be put into consideration during a building design is its emergency operations or procedure. Our unit have a dry contact for any emergency system to halt the operations of the unit in the event of emergency and avoid catastrophic losses.





#### **Smart Control Board**

Few technological advancement made by our R&D team is the latest model utilize the new AIT intelligent control board. It incorporates circuit optimization, control logic updates, VRF unit control, fault display, debugging, anti-surge protection and much more.

#### **Load Setting**

It is now possible to operate the unit at a said capacity ranging from 60  $\sim$  100 (5 steps). Should the unit, draw more energy than the setting. The unit will trip in full-load operation, and effectively affecting the operation of the whole system.

#### **Control System**

One of the advantages of Acson AVR line-up is it use common control system. Thus, this make the system is more user friendly especially for future upgrades.

#### **Independent Controller**

Acson provides a big variety of independent controllers, including fashionable touch-screen wired controllers and practical and nice-looking wireless remote controllers. All of them can help you easily control the air conditioning unit and bring you more convenient and comfortable life with easy operations.

AC-HMI328AE





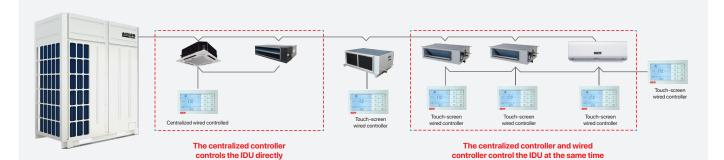
**GS01** Remote Controller

#### Wired Controller AC321 feature:

- 1 Temperature settings
- (5) Keyboard locking and unlocking
- (2) Mode settings
- 6 Fan speed settings
- 3 Sleep mode
- 7 IDU address display
- 4 Failure code display
- 8 Indoor temperature display
- 9 Timed power-on/off
- (10) Filter cleaning reminder
- (11) Control function of auxiliary heater
- <sup>12</sup> °C/°F temperature settings
- Real-time clock settings
- Setting automatic startup after power restoration
- (15) Weekly timed operation

#### **Centralized Controller AC-HMI323A**

The centralized wired controller collects advantages of the convenient independent controller and the group-controlled centralized control system to perform centralized control on a single or multiple units. With rich functions and flexible applications, the centralized wired controller can widely apply to small- and medium-sized offices and business spaces.



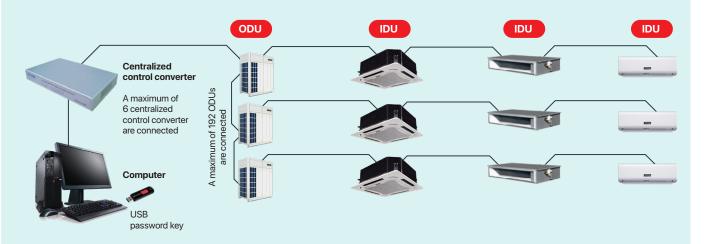
#### Control over a maximum of 64 IDUs

- Single control or group control (power-on/off, mode settings, parameter settings)
- 2 Indoor temperature query
- IDU locking
- (4) Grouping

- Temperature unit settings
- Upper and lower room temperature limit query
- Filter cleaning reminder
- 8 Timed power-on/off
- Girculating display
- (10) Real-time clock
- (11) Sleep mode
- (12) Weekly timed operation

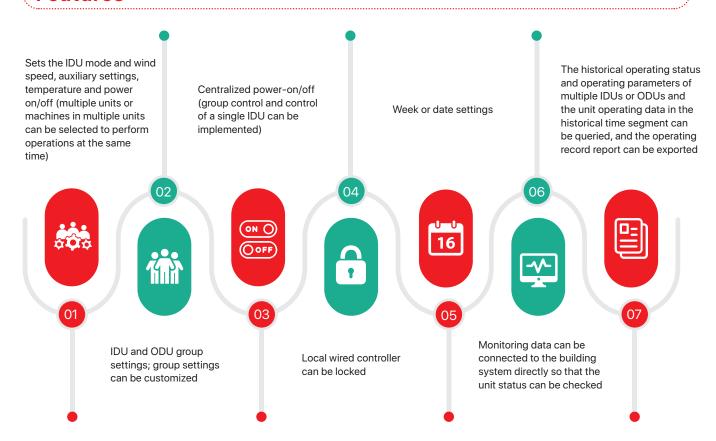
#### **Intelligent Monitoring System AC-CCS101A**

Acson intelligent monitoring system can perform intelligent monitoring on multiple units with powerful functions. Featuring attractive monitoring interface and convenient control, the system can help proprietors to easily improve management efficiency. It is the first choice for large-sized and high-end offices and business places.



The system can perform centralized monitoring on multiple IDUs and ODUs from a remote end. A computer can be connected with a centralized control converter to perform network control on up to 192 ODUs and 3072 IDUs.

#### **Features**



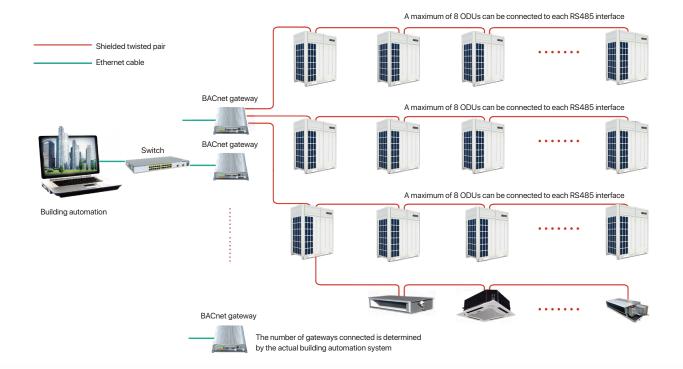
#### **Building Automation System**

#### Acson provides flexible building system control solutions:

The unit can be directly connected to the ModBus-based building automation system through the standard ModBus communication interface configured for the unit, implementing intelligent monitoring without accessing the conversion equipment.



The unit can be connected to the BACnet based building automation system through the BACnet gateway. A maximum of 24 ODUs can be connected to a BACnet gateway and up to 1536 IDUs can be connected at one time.







# **Cold Wind Prevention Design To Provide Comfortable Experience During Heating Operation**

The units automatically start the cold wind prevention function when heating is started, to prevent discomfort caused by cold wind.

# Wall Mounted IDU A5VWM-SP

#### **Ultra-Thin Body Design**

The thickness of multiple models is only 200mm, which can be installed conveniently. The beautiful appearance of the unit improves the indoor decorative style.

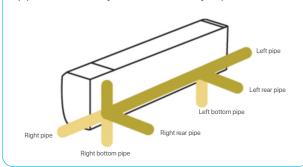
#### **Swing Design**

Guide blades can automatically swing up and down to achieve the good air supply status. The peak air supply mode can also be set by remote control to supply comfortable air everywhere in the room.



#### Simple and Flexible Installation

The unit can be easily installed with built-in electronic expansion valves. The connection direction of refrigerant pipes can be flexibly selected as actually required.



#### **Super Silent Design**

The IDUs use large diameter non-isometric helical throughflow wind wheels and excellent plastic covering motors to enable the unit to run more stably and smoothly. The advanced airflow analysis CFD is used to optimize air paths, making the air supply smoother and wind sound softer.



#### **Ease Of Maintenance And Overhaul**

The baffles of the units can be easily removed for regular cleaning and maintenance, saving your time.

#### AVR Wall Mounted A5VWM-SP Series

Model			A5VWM022SP	A5VWM028SP	A5VWM036SP	A5VWM045SP	A5VWM056SP		
		BTU/h	7,500	9,600	12,300	15,400	19,100		
Nominal Coc	ling Capacity	kW	2.2	2.8	3.6	4.5	5.6		
Input Power kW			0.0	)25	0.03	0.04	0.048		
Power Suppl	у				220-240V/50Hz				
Rated Input (	Current	А	0.	18	0.2	0.	28		
Noise	(High/Med/ Low/ Ultra-Low)	dB(A)	34/33	/32/30	37/36/35/33	38/37/36/33	43/42/41/38		
	Ultra-Low	m <sup>3</sup> /h / CFM	320 /	188.3	390 / 229.5	450 / 264.8	610 / 359.0		
Air Flow	Low	m³/h / CFM	380/	223.6	430 / 253.0	530 / 311.9	680 / 400.2		
Rate	Medium	m³/h / CFM	400/	235.4	480 / 282.5	570 / 335.4	750 / 441.4		
	High	m³/h / CFM	430/	253.0	500 / 294.2	610 / 359.0	800 / 470.8		
Liquid Pipe S	ize	mm (in)	Ф 6.35(1/4")						
Gas Pipe Siz	9	mm (in)	Ф 9.52	2(3/8")	Ф 12.7(1/2")				
Condensate	Water Pipe Size	mm	Ф 20						
	Width	mm		864	972				
Unit Dimension	Depth	mm		200		215			
	Height	mm		300		32	20		
	Width	mm		894		10	07		
Packing Dimension	Depth	mm		230		25	50		
	Height	mm		325		350			
Unit Weigh	i	kg		9.5	12.5				
Gross Weig	ht	kg		12	15				

#### Notes

<sup>2.</sup> The above parameters may be changed due to product improvement. The parameters indicated on the unit nameplate should prevail.



<sup>1.</sup> The above cooling capacities are tested under the condition in which the indoor dry/wet bulb temperature is  $27^{\circ}$  C /19° C and the outdoor dry/wet bulb temperature is  $35^{\circ}$  C /24° C .



# **Ceiling Cassette IDU A5VCK-W**

#### Milky White Panel & Streamlined Design

This IDU adopts the milky white panel and streamlined design to guarantee that the ceiling around the unit is clean.

#### 360° Directions Air Supply

Unique round flow air supply design can greatly expand the air supply range and supply soft air everywhere in the room.



#### **Fresh Air Design**

The standard configuration of the unit provides the long acting dust filter screen. Meanwhile, the fresh activated-carbon filter assembly is optional to filter dust particles from the air efficiently and remove the peculiar smell and odor. The filter screen can be removed and cleaned conveniently to keep the indoor air clean.



\*Booster fan is required for fresh air specification. Please contact us for more

#### **Smooth Drainage**

The standard unit is configured with the condensate water lifting pump with the head being 700 mm to facilitate setting of drain pipes greatly.

Note: The 1200 mm condensate water pump is optional.



#### **Introduction of Fresh Air**

The unit is configured with a reserved fresh air inlet hole to introduce outdoor fresh air to the room and ensure a natural environment for the user.

#### AVR Ceiling Cassette A5VCK-W Series

Model			A5VCK028W	A5VCK032W	A5VCK036W	A5VCK040W	A5VCK045W	A5VCK050W	A5VCK056W	A5VCK063W	
		BTU/hr	9,600	10,900	12,300	13,600	15,400	17,100	19,100	21,500	
Nominal Cooling Ca	pacity	kW	2.8	3.2	3.6	4.0	4.5	5.0	5.6	6.3	
Nominal Input Powe	er	kW	0.025	0.025	0.025	0.027	0.027	0.028	0.030	0.032	
Nominal Running Co	urrent	А	0.17	0.17	0.17	0.18	0.18	0.22	0.26	0.29	
Control	Air Discharge				,	CIRCULAR AI	R DISCHARGE	,		,	
Power Source		V/Ph/Hz				220 ~ 240	0V/~/50Hz				
	High		500	500	500	577	577	618	648	707	
Air Flow Rate	Medium	CFM	353	383	412	436	436	483	483	530	
	Low		259	259	283	359	359	365	401	454	
	High	dB(A)	32	32	33	36	36	37	39	41	
Sound Pressure Level	Medium		28	26	27	31	31	32	33	34	
2070.	Low		23	23	23	29	29	30	30	31	
	Height	mm	840	840	840	840	840	840	840	840	
Unit Dimension (Without Panel)	Width	mm	840	840	840	840	840	840	840	840	
(**************************************	Depth	mm	207	207	207	207	207	207	207	207	
Unit Weight (Excluding Panel We	eight)	kg		19			20				
· · · · ·	Height	mm	950	950	950	950	950	950	950	950	
Panel Dimensions	Width	mm	950	950	950	950	950	950	950	950	
	Depth	mm	57	57	57	57	57	57	57	57	
Panel Weight	Panel Weight kg		5	5	5	5	5	5	5	5	
	Liquid	mm (in)			,	Ф6.35(1/4")		,	,	Ф9.52(3/8")	
Piping	Gas	mm (in)	Ф9.52(3/8")			Ф12.7	7(4/8")			Ф15.88(5/8")	

Model			A5VCK071W	A5VCK080W	A5VCK090W	A5VCK100W	A5VCK112W	A5VCK125W	A5VCK140W			
		BTU/hr	24,200	27,300	30,700	34,100	38,200	42,700	47,800			
Nominal Cooling Ca	pacity	kW	7.1	8.0	9.0	10.0	11.2	12.5	14.0			
Nominal Input Powe	r	kW	0.037	0.039	0.048	0.050	0.070	0.083	0.112			
Nominal Running Cu	urrent	А	0.35	0.39	0.48	0.54	0.78	0.94	1.20			
Control	Air Discharge				CIF	RCULAR AIR DISCHAF	RGE					
Power Source		V/Ph/Hz				220 ~ 240V/~/50Hz						
	High		707	766	795	1178	1178	1237	1266			
Air Flow Rate	Medium	CFM	530	530	589	677	724	772	871			
	Low		454	454	483	530	583	583	582			
	High	dB(A)	43	44	44	49	49	50	51			
Sound Pressure Level	Medium		34	37	38	36	38	38	41			
Level	Low		31	33	33	31	31	33	33			
	Height	mm	840	840	840	840	840	840	840			
Unit Dimension (Without Panel)	Width	mm	840	840	840	840	840	840	840			
(Without Funci)	Depth	mm	207	207	207	289	289	289	289			
Unit Weight (Excluding Panel We	eight)	kg		21		24						
· · · · · · · · · · · · · · · · · · ·	Height	mm	950	950	950	950	950	950	950			
Panel Dimensions	Width	mm	950	950	950	950	950	950	950			
	Depth	mm	57	57	57	57	57	57	57			
Panel Weight kg		5	5	5	5	5	5	5				
Dining	Liquid	mm (in)				Ф9.52(3/8")			·			
Piping	Gas	mm (in)		Ф15.88(5/8")								

Nominal cooling capacity are based on the conditions below:

Cooling							
Indoor	27°C DB / 19° C WB						
Outdoor	35°C DB / 24° C WB						

Sound pressure level is measured in a semi-anechoic chamber. Actual noise level might be higher due to external influence.
 Unit in parentheses is available external static pressure. Please contact us for more details.
 All specifications are subjected to change by the manufacturer without prior notice.



# **Standard Ceiling Concealed IDU A5VCC-E**

#### **Standard Concealed Design**

With a thickness of 198mm and depth of 450mm only, the unit can flexibly apply to the narrow and small installation environment, thus creating more comfortable spaces.



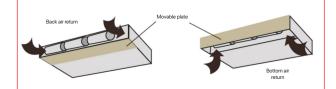
#### **Integrated Design**

The unit provides the built-in electronic expansion valve and the condensate water lifting pump with the lift being 700 mm to save more ceiling height and enable smoother drainage.



#### Flexible Air Return Mode

The standard unit adopts the back air return mode, which can be converted to bottom air return by moving a movable plate on the installation site. The back air return mode is superior to the bottom air return mode in noises.



Note: The noise of bottom air return is about 5 dB(A) higher than that of the back air return mode.

#### AVR Ceiling Concealed A5VCC-E (Standard Series)

Model			A5VCC022E	A5VCC025E	A5VCC028E	A5VCC032E	A5VCC036E		
	Cooling	BTU/h	7,500	8,500	9,500	10,900	12,200		
	Capacity	kW	2.2	2.5	2.8	3.2	3.6		
Nominal	Input Power	kW		0.051	0.	056			
	Operating Current	Α		0.25	0	.27			
Control	Operation			WIRED CO	ONTROLLER (WIRELESS C	PTIONAL)			
Power Source		V/Ph/Hz			220 ~ 240V/~/50Hz				
Refrigerant Control				BUILT - IN	N ELECTRONIC EXPANSIO	ON VALVE			
m³/h			Ę	520 / 450 / 380 / 300 / 25	620 / 550 / 450 / 400 / 330				
Air Flow Rate		CFM	:	306 / 264 / 223 / 176 / 147	365 / 323 / 264 / 235 / 194				
F . 10: :: B		Pa	10 (0/30)						
External Static Pressure		in.wg			0.04 (0/0.12)				
Sound Pressure Level		dB(A)		31/28/27/25/24		34/32/	28 / 26 / 25		
	Height	mm(in)	198 (7.80")						
Unit Dimension	Width	mm(in)							
	Depth	mm(in)			450 (17.72)				
Unit Weight	'	kg/lb	16.0 / 35.3						
Drainage Pipe Size		mm(in)	20.5 (4/5")						
	Discharge	mm(in)			6.35 (1/4")				
Piping	Suction	mm(in)		9.52 (3/8")		12.70 (1/2")			

Model			A5VCC040E	A5VCC045E	A5VCC050E	A5VCC056E	A5VCC063E	A5VCC071E		
	Cooling	BTU/h	13,600	15,300	17,000	19,100	21,400	24,200		
	Capacity	kW	4.0	4.5	5.0	5.6	6.3	7.1		
Nominal	Input Power	kW	0.071			0.091		0.107		
	Operating Current	А	0.35		0.	44	0.42	0.5		
Control	Operation			WIRED CONTROLLER (WIRELESS OPTIONAL)						
Power Source		V/Ph/Hz			220 ~ 240	0V/~/50Hz				
Refrigerant Control					BUILT - IN ELECTRON	IIC EXPANSION VALV	E			
Air Flanc Date	m³/h			680 / 620 / 520 / 440 / 400 820 / 800 /			1,050 / 1,000 / 830 / 690 / 600	1,160 / 1,100 / 910 / 750 / 660		
Air Flow Rate		CFM	400/365/3	06 / 259 / 235	482 / 470 / 4	00 / 335 / 306	618 / 588 / 488 / 406 / 353	682 / 647 / 535 / 441 / 388		
5		Pa	10 (0/30)							
External Static Pressure		in.wg			0.04 (	0/0.12)				
Sound Pressure Level		dB(A)	36/34/3	30 / 28 / 26	37/36/3	34 / 33 / 31	37/36/33/31 /30	38/37/34/32 /30		
	Height	mm(in)	198 (7.80")							
Unit Dimension	Width	mm(in)	700 (2	27.56")	900 (3	900 (35.43")		1150 (45.28")		
	Depth	mm(in)			450 (17.72)					
Unit Weight		kg/lb	16.0	/ 35.3	20.0	/ 44.1	24.5	54.0		
Drainage Pipe Size	Drainage Pipe Size mm(in) 20.5 (4/5")									
D: :	Discharge	mm(in)	6.35 (1/4")							
Piping	Suction	mm(in)		12.70	15.88 (5/8")					

Notes: 1. Nominal cooling capacity are based on the conditions below:

Cooling							
Indoor 27°C DB / 19° C WB							
Outdoor	35°C DB / 24° C WB						

Sound pressure level is measured in a semi-anechoic chamber. Actual noise level might be higher due to external influence.
 Unit in parentheses is available external static pressure. Please contact us for more details.
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# **Compact Ceiling Concealed IDU A5VCC-V**

#### **Silence and Low Noise**

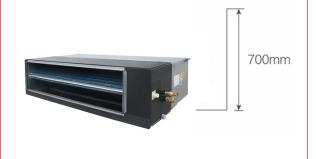
The IDU adopts the centrifugal double-suction fan featuring high-efficiency wide-impeller and forward-curved multi-blade to implement low speed, large air volume and low noise.

## Onsite Regulation For Multiple Static

The IDU is configured with multiple external static pressures such as 15/30/50Pa based on cooling capacity to flexibly set air ducts at different air supply distances. Static pressures can be converted by changing motor wire connection to easily meet air supply requirements in different situations.

## **High-Lift Condensate Water Lifting Pump**

The unit can be configured with the condensate water lifting pump with a high lift to facilitate field installation and effectively drain off the condensate water from the air conditioning system.





#### AVR Ceiling Concealed A5VCC-V (Compact) Series

Model			A5VCC080V	A5VCC090V	A5VCC100V	A5VCC112V	A5VCC125V	A5VCC140V	A5VCC160V		
	Cooling	BTU/h	27,300	30,700	34,100	38,200	42,700	47,800	54,600		
	Capacity	kW	8.00	9.00	10.00	11.20	11.20 12.50		16.00		
Nominal	Input Power	kW	0.184	0.235	0.295	0.295	0.322	0.39	0.41		
	Operating Current	А	0.86	1.13	1.4	1.4	1.55	1.85	1.95		
Control	Operation				WIRED CONTR	OLLER (WIRELE	SS: OPTIONAL)				
Power Source		V/Ph/Hz			22	20 ~ 240V/~/50I	Нz				
Refrigerant Con	trol				BUILT - IN ELE	ECTRONIC EXPA	NSION VALVE				
	Low	m³/h / CFM	840 / 494	980 / 577	1,100 / 647	1,130 / 665	1,290 / 759	1,520 / 895	1,540 / 906		
Air Flow Rate	Medium	m³/h / CFM	950 / 559	1,200 / 706	1,370 / 806	1,380 / 812	1,530 / 901	1,830 / 1,077	1,900 / 1,118		
	High	m³/h / CFM	1,200 / 706	1,400 / 824	1,680 / 989	1,700 / 1,001	1,900 / 1,118	2,200 / 1,295	2,300 / 1,354		
F		Pa	50 (30/80)								
External Static P	ressure	in.wg	0.2 (0.12/0.32)								
Sound Pressure	Level	dB(A)	36/37/40	38 / 40 / 41	41 / 40 / 38	42/38/36	43 / 40 / 38	45 / 44 / 40	45 / 44 / 41		
	Height	mm(in)		300 (11.81)							
Unit Dimension	Width	mm(in)		1,150 (45.28)		1,450 (57.09)					
	Depth	mm(in)				600 (23.62)					
	Height	mm(in)				320 (12.6)					
Packing Dimension	Width	mm(in)		1,320 (51.97)			1,620	(63.78)			
	Depth	mm(in)				670 (23.38)					
Unit Weight		kg / lb	38/84 48/106								
Drainage Pipe Size mm(in) 19.05 (R3/4)											
District	Discharge	mm(in)				9.52 (3/8")					
Piping	Suction	mm(in)				15.88(5/8")					

#### Notes

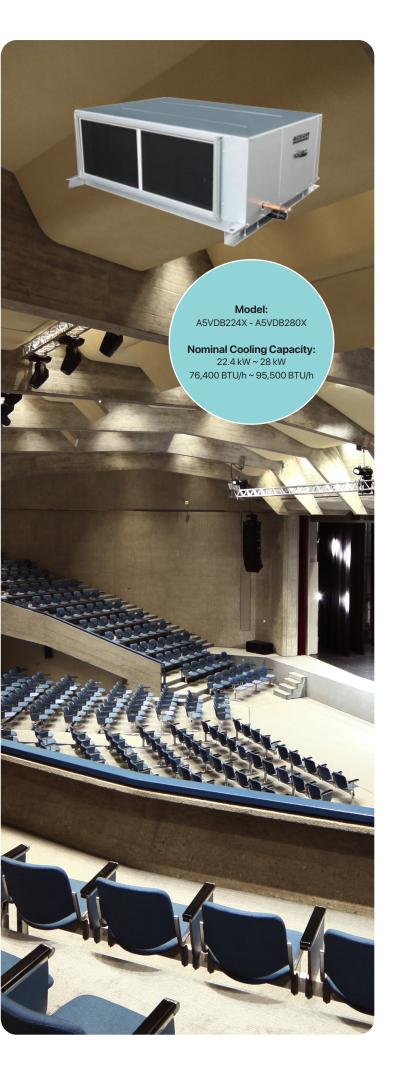
1. Nominal cooling capacity are based on the conditions below:

	Cooling
Indoor	27°C DB / 19° C WB
Outdoor	35°C DB / 24° C WB

<sup>2.</sup> Sound pressure level is measured in a semi-anechoic chamber. Actual noise level might be higher due to external influence.

<sup>3.</sup> Unit in parentheses is available external static pressure. Please contact us for more details.

<sup>4.</sup> All specifications are subjected to change by the manufacturer without prior notice.



# High Static Ducted Blower IDU A5VDB-X



#### **Slim Design**

With the ultra-thin body design, the unit can be mounted on the ceiling to save the construction space and cost.

#### **Elegant Decoration**

The IDU and air duct are installed inside the ceiling like the largescale central air conditioning system. After installation, the air outlets are well integrated with the indoor decoration.

#### **Free Placement Of Air Ducts**

With the standard high static pressure of air supply, air ducts can be made more flexibly to match various air outlets and meet requirements in different types of rooms.







L-shaped room

U-shaped room

Narrow and long room

#### **Comfortable Air Supply**

The unit supplies cold to each area through air ducts. The air outlet can flexibly adopt side air supply or bottom air supply according to actual situations to supply even and comfortable air flow.



#### AVR Ducted Blower A5VDB-X Series

Model			A5VDB224X	A5VDB280X		
Naminal	Cooling	BTU/h	76,400	95,500		
Nominal	Capacity	kW	22.4	28.0		
Power Source		V/Ph/Hz	380-415V,	'3N~/50Hz		
Rated Input Current		А	2.05	2.75		
Total External Pressure		Pa	225	300		
A: E1	m³,		4,000	5,000		
Air Flow		CFM	2,354	2,942		
External Static Pressure		Pa	175	225		
Motor Power		kW	1.1	1.5		
Motor Rated Input Power		kW	1.35	1.81		
Air Filter			Nylon Filter			
Drainage Pipe Size		mm(in)	25.4	(R1)		
B	Discharge	mm(in)	9.52 (3/8")	12.70 (1/2")		
Piping	Suction	mm(in)	19.05 (3/4")	22.23 (7/8")		
	Height	mm(in)	498	(19.6)		
Unit Dimension	Width	mm(in)	1,300 (51.2)	1,550 (61.0)		
	Depth	mm(in)	870 (	34.2)		
Unit Weight		kg	117	140		

Notes:

1. Nominal cooling capacity are based on the conditions below:

Cooling							
Indoor	27°C DB / 19° C WB						
Outdoor	35°C DB / 24° C WB						

- Sound pressure level is measured in a semi-anechoic chamber. Actual noise level might be higher due to external influence.
   Unit in parentheses is available external static pressure. Please contact us for more details.
   All specifications are subjected to change by the manufacturer without prior notice.

#### A5VRY A Alpha Series

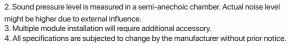


Model			A5VRY080A	A5VRY100A	A5VRY120A	A5VRY140A	A5VRY160A	A5VRY180A	A5VRY200A	A5VRY220A	
0 1: 0 ::		kW	25.20	28.00	33.50	40.50	45.00	50.40	56.00	61.50	
Cooling Capacity		BTU/h	85,900	95,500	114,300	138,100	153,500	171,900	191,000	209,800	
Nominal Input Po	wer	kW	5.60	6.70	8.15	10.38	11.56	13.15	14.30	15.73	
Nominal Operatin	g Current	А	10.2	12.1	15.5	17.8	21.3	25.4	29.8	32.1	
Efficiency	СОР	W/W	4.5	4.18	4.11	3.9	3.89	3.83	3.92	3.91	
Power Source		V/Ph/Hz				380-415V	/3N~/50Hz				
Air Flow Data		m³/h	9,700	10,600	14,000	14,000	14,700	14,700	22,000	22,000	
Air Flow Rate		CFM	5,709	6,238	8,240	8,240	8,652	8,652	12,948	12,948	
Noise		dB(A)	56	58	60	60	60	61	62	62	
	Height	mm(in)		1,650 (64.96)							
Unit Dimension (Individual)	Width	mm(in)	950 (37.40)			1,340	(52.75)		1,680	(66.14)	
(,	Depth	mm(in)		780 (30.71)							
	Height	mm(in)		1,820 (71.65)							
Packing Dimen- sion (Individual)	Width	mm(in)	1,000 (	(39.37)		1,390 (54.72)				1,730 (68.11)	
,	Depth	mm(in)				830 (3	32.68)				
Unit Weight		kg/lb	220.0 / 485	221.0 / 487	259.5 / 572	262.0 / 577	310.5 (684.5)	326.5 (719.8)	449 (9	989.8)	
Maximum Indoor	Unit	pcs		16		2	0	2	4	28	
D. ( :	Туре					R4	10A				
Refrigerant	Charge	kg/lb	8.0/	17.64	9.0 / 19.84	11.5 / 25.35	14/3	30.86	18/3	39.68	
Oti F:	Discharge	mm(in)	9.52 (3/8)			12.70 (1/2)			15.88	5 (5/8)	
Connection Pipe	Suction	mm(in)	22.23	3 (7/8)			28.60	(1-1/8)			

Notes:

1. Nominal cooling capacity are based on the conditions below:

Cooling								
Indoor	27°C	27°C DB / 19° C WB						
Outdoor	35°C	35°C DB / 24° C WB						
Div	Length	5m						
Pipe	Height	0m (On Ground)						











#### A5VRY A Alpha Series



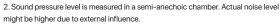
Model	Model		A5VRY240A	A5VRY260A	A5VRY280A	A5VRY300A	A5VRY320A	A5VRY340A	A5VRY360A	A5VRY380A			
		Master	A5VRY100A	A5VRY100A	A5VRY100A	A5VRY140A	A5VRY140A	A5VRY160A	A5VRY180A	A5VRY160A			
Combination		Slave	A5VRY140A	A5VRY160A	RY160A A5VRY180A		A5VRY180A	A5VRY180A	A5VRY180A	A5VRY220A			
Sla													
Cooling Capacity		kW	68.50	73.00	78.40	85.50	90.90	95.40	100.80	106.50			
Cooling Capacity		BTU/h	233,700	249,000	267,500	291,700	310,100	325,500	343,900	363,300			
Nominal Input Po	wer	kW	17.08	18.26	19.85	21.94	23.53	24.71	26.30	27.29			
Nominal Operation	g Current	А	29.9	33.4	37.5	39.1	43.2	46.7	50.8	53.4			
Efficiency	СОР	W/W	4.01	4.00	3.95	3.9	3.86	3.86	3.83	3.9			
Power Source		V/Ph/Hz				380-415V/	/3N~/50Hz						
Air Flow Rate		m³/h	24,600	25,300	25,300	25,300 28,700		29,400	29,400	36,700			
All Flow Rate		CFM	14,479	14,891	14,891	16,892 16,892 17,304 17,		17,304	21,601				
Noise	se dB(A) 62 62 63 63 64 64 64						64	64					
	Height	mm(in)		1,650 (64.96)									
Unit Dimension (Individual)	Width	mm(in)		2290 (90.16)			3,020 (118.90)						
	Depth	mm in)				780 (3	30.71)						
	Height	mm(in)				1,820	(71.65)						
Packing Dimen- sion (Individual)	Width	mm(in)		2,390 (94.09)			2,780 (	109.44)		3,120 (122.83)			
	Depth	mm(in)				830 (3	32.68)						
Unit Weight		kg/lb	483 / 1,064	531.5 / 1,171	547.5 / 1,207	572.5 / 1,262	588.5 / 1,297	637 / 1,404	653 / 1,439	759.5 / 1,674			
Maximum Indoor	Unit	pcs	28	3	32	3	6	4	.0	44			
D. ( )	Туре					R4′	10A						
Refrigerant	Charge	kg/lb	19.5 / 42.99	22/	48.5	25.5	/ 56.2	28 /	61.7	32 / 70.5			
One and the Di	Discharge	mm(in)	15.88 (5/8")				19.05 (3/4")						
Connection Pipe	Suction	mm(in)	28.6 (1-1/8")		31.8 (1-1/4")		34.9 (	I-3/8")	38.1 (1-1/2")				

Notes:

1. Nominal cooling capacity are based on the conditions below:

—

Cooling								
Indoor	27°C DB / 19° C WB							
Outdoor	35°C	35°C DB / 24° C WB						
5.	Length	5m						
Pipe	Height	0m (On Ground)						



<sup>3.</sup> Multiple module installation will require additional accessory.

4. All specifications are subjected to change by the manufacturer without prior notice.











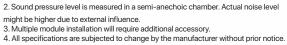




Model			A5VRY400A	A5VRY420A	A5VRY440A	A5VRY460A A5VRY480A A5VRY500A A5VRY520A A5						
		Master	A5VRY180A	A5VRY200A	A5VRY220A	A5VRY140A	A5VRY140A	A5VRY140A	A5VRY160A	A5VRY180A		
Combination		Slave	A5VRY220A	A5VRY220A	A5VRY220A	A5VRY140A	A5VRY160A	A5VRY180A	A5VRY180A	A5VRY180A		
		Slave		J		A5VRY180A	A5VRY180A	A5VRY180A	A5VRY180A	A5VRY180A		
Cooling Capacity		kW	111.90	117.50	123.00	131.40	135.90	141.30	145.80	151.20		
Cooling Capacity		BTU/h	381,800	400,900	419,600	448,300	463,700	482,100	497,400	515,900		
Nominal Input Po	wer	kW	28.88	30.03	31.46	33.91	35.09	36.68	37.88	39.45		
Nominal Operatin	g Current	А	57.5	61.9	64.2	61	64.5	68.6	72.1	76.2		
Efficiency	СОР	W/W	3.87	3.91	3.91	3.87	3.87	3.85	3.84	3.83		
Power Source		V/Ph/Hz				380-415V,	/3N~/50Hz					
Air Flow Rate			36,700	44,000	44,000	42,700	43,400	43,400	44,100	44,100		
Air Flow Rate		CFM	21,601	25,897	25,897	25,132	25,544	25,544	25,956	25,956		
Noise		dB(A)	64		65		66					
	Height	mm(in)	1,650 (64.96)									
Unit Dimension (Individual)	Width	mm(in)	3,020 (118.90)	3,360 (	132.28)	4,020 (158.27)						
	Depth	mm(in)				780 (	(30.71)					
	Height	mm(in)				1,820	(71.65)					
Packing Dimen- sion (Individual)	Width	mm in)	3,120 (122.83)	3,460 (	136.22)	4,170 (164.17)						
	Depth	mm(in)				830 (3	32.68)					
Unit Weight		kg/lb	765.5 / 1,687	885/	1,951	841 / 1,854	889 / 1,960	905 / 1,995	953 / 2,101	979.5 / 2,159		
Maximum Indoor	Unit	pcs	44	4	.8	5	2	5	4	56		
Defeirement	Туре					R4′	10A					
Refrigerant	Charge	kg/lb	32 / 70.5	36/	79.3		37 / 81.5		42/	92.6		
O	Discharge	mm(in)				19.05	(3/4")					
Connection Pipe	Suction	mm(in)				38.1 (1	1-1/2")					

1. Nominal cooling capacity are based on the conditions below:

Cooling								
Indoor	27°C	27°C DB / 19° C WB						
Outdoor	35°C	35°C DB / 24° C WB						
5.	Length	5m						
Pipe	Height	0m (On Ground)						













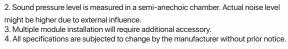
#### A5VRY A Alpha Series



Model			A5VRY560A	A5VRY580A	A5VRY600A	A5VRY620A	A5VRY640A	A5VRY660A					
		Master	A5VRY160A	A5VRY180A	A5VRY160A	A5VRY180A	A5VRY200A	A5VRY220A					
Combination		Slave	A5VRY180A	A5VRY180A	A5VRY220A	A5VRY220A	A5VRY220A	A5VRY220A					
		Slave	A5VRY220A	A5VRY220A	A5VRY220A	A5VRY220A	A5VRY220A A5VRY2						
0 " 0 "		kW	156.90	162.30	168.00	173.40	179.00	184.50					
Cooling Capacity BTU			535,300	553,700	573,200	591,600	610,700	629,500					
Nominal Input Po	wer	kW	39.45	40.44	42.03	43.02	44.61	45.76					
Nominal Operatir	ng Current	А	78.8	82.9	85.5	89.6	94.0	96.3					
Efficiency	СОР	W/W	3.97	4.01	3.99	4.03	4.01	4.03					
Power Source		V/Ph/Hz			380-415V	/3N~/50Hz							
Air Flow Rate			51,400	51,400	58,700	58,700	66,000	66,000					
			30,253	30,253	34,550	34,550	38,846	38,846					
Noise		dB(A)		6	67								
Height	Height	mm(in)	1,650 (64.96)										
Unit Dimension (Individual)	Width	mm(in)	4,360 (	171.65)	4,700 (	185.04)	5,040 (198.43)						
(marriada)	Depth	mm(in)											
	Height	mm(in)			1,820 (71.65)								
Packing Dimension (Individual)	Width	mm(in)	4,510 (	177.56)	4,850 (	190.94)	5,190 (204.33)						
olon (marvidual)	Depth	mm(in)			830 (3	32.68)							
Unit Weight		kg/lb	1,086 / 2,394	1,102 / 2,429	1,208.5 / 2,664	1,224.5 / 2,699	1,347	/ 2,969					
Maximum Indoor	Unit	pcs		58			60						
D. ( : .	Туре				R4	10A							
Refrigerant	Charge	kg/lb	46 /	101	50 /	110	54 / 119						
0 .: 5:	Discharge	mm(in)			22.23	(7/8")							
Connection Pipe	Suction	mm(in)		44.5 (1-3/4")									

Notes:
1. Nominal cooling capacity are based on the conditions below:

Cooling								
Indoor	27°C	27°C DB / 19° C WB						
Outdoor	35°C	35°C DB / 24° C WB						
Dis.	Length	5m						
Pipe	Height	0m (On Ground)						













#### **Accessories Kit**

#### **Indoor Unit**

LCD Wired Controller	LCD Wireless Controller	Condensate Water Lifting Pump
4 28.0° * * * * * * * * * * * * * * * * * * *		
	acson.	700 mm lift available

#### Controller

#### **Optional Accessories for Separate Controllers**

No.	Order Code	Order Code Name Model				
1	AC-HMI328AE	Wired Controller	AC328A	All IDUs and Fresh air IDU		
2	AC-HMIGS01CE-(1/10/50)A	Wireless remote controller (including remote receiver)	AC S01	All IDUs and Fresh air IDU		
3	AC-HMIGS01DE-(1/10/50)A	Wireless remote controller (excluding remote receiver)	AC S01	A5VWM/A5VCK		

Note: \* (1/10/50) indicates the number of controllers accommodated in single package box.

For details, see the order naming list.



#### System Control - Centralized Management System

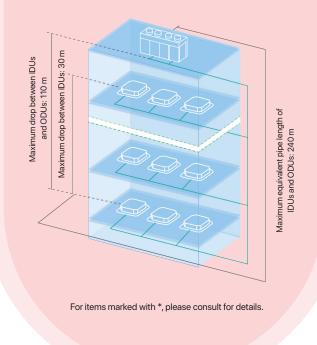
Control mode	Centralized wired controller	Centralized monitoring system	Household-based billing system	Building automation
Ordered parts	AC-HMI323A	AC-CCS101A (centralized monitoring software) AC-GTW001A (1-channel conversion interface) AC-GTW001 B (4-channel conversion interface)	AC-CCS102A (software system) AC-GTW002A (power divider) AC-GTW002B (data backup device)	Does not need to order ModBus gateway (Built-In) AC-GTW003A (BACNET protocol gateway)

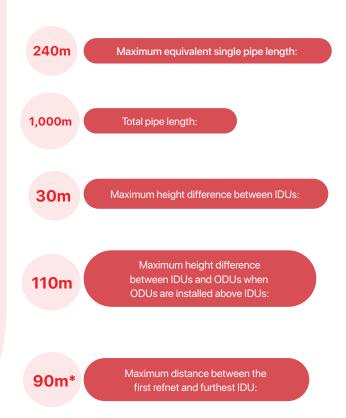


 $<sup>^{\</sup>ast}$  A/B/C indicates white, blue, and gold respectively.

#### **Piping Overview**

The Alpha series VRF units optimize the supercooling design and refrigerant control technologies and break through limitations in the pipe connection, which give larger product design and construction space and allow for more flexible deployment of ODUs.





#### **Summary-Indoor & Outdoor Unit Line-up**

#### Indoor Unit Line-up

	Model	Capacity range (kW)	2.2	2.5	2.8	2.2	3.6	4.0	4.5	5.0	5.6	6.3	7.1	8.0	9.0	10.0	11.2	12.5	14.0	16.0	22.4	28
	Ceiling Concealed (Standard) A5VCC-E		•	•	•	<b>Ø</b>	<b>Ø</b>	•	•	<b>Ø</b>	<b>Ø</b>	•	•									
	Ceiling Concealed (Compact) A5VCC-V													<b>Ø</b>								
IDU	Ceiling Cassette A5VCK-VP				<b>Ø</b>	•	<b>Ø</b>	<b>Ø</b>														
	Ducted Blower A5VDB-X																				<b>&gt;</b>	<b>Ø</b>
	Wall Mounted A5VWM-SP	ASSON	<b>Ø</b>		•		<b>Ø</b>		•		<b>Ø</b>											

#### Note:

- 1. The lineup is for indicative purposes, actual coupling will still depends on the outdoor unit. Please consult us should you need further assistance.
- 2. Fresh air ducted blower only available for EcoPro series.

#### **Outdoor Units**

#### A5VRY A Alpha Series

<u></u>				
Cooling Capacity (MBH)	Model	A5VRY080A	A5VRY100A	A5VRY120A
80	A5VRY080A	<b>Ø</b>		
100	A5VRY100A		<b>Ø</b>	
120	A5VRY120A			•
140	A5VRY140A			
160	A5VRY160A			
180	A5VRY180A			
200	A5VRY200A			
220	A5VRY220A			
240	A5VRY240A		<b>Ø</b>	
260	A5VRY260A		<b>Ø</b>	
280	A5VRY280A		<b>Ø</b>	
300	A5VRY300A			
320	A5VRY320A			
340	A5VRY340A			
360	A5VRY360A			
380	A5VRY380A			
400	A5VRY400A			
420	A5VRY420A			
440	A5VRY440A			
460	A5VRY460A			
480	A5VRY480A			
500	A5VRY500A			
520	A5VRY520A			
540	A5VRY540A			
560	A5VRY560A			
580	A5VRY580A			
600	A5VRY600A			
620	A5VRY620A			
640	A5VRY640A			
660	A5VRY660A			
	I			

A5VRY140A	A5VRY160A	A5VRY180A	A5VRY200A	A5VRY220A	Maximum Number of IDU
					16
					16
					16
<b>Ø</b>					20
	<b>Ø</b>				20
		<b>Ø</b>			24
			<b>Ø</b>		24
				<b>Ø</b>	28
<b>Ø</b>					28
	<b>©</b>				32
		<b>②</b>			32
<b>Ø</b>	<b>©</b>				36
•		•			36
	<b>©</b>	<b>②</b>			40
		<b>Ø Ø</b>			40
	<b>©</b>			<b>Ø</b>	44
		<b>②</b>		<b>②</b>	44
			<b>©</b>	•	48
				<b>Ø Ø</b>	48
<b>Ø Ø</b>		•			52
•	•	•			52
•		00			54
	•	<b>Ø Ø</b>			54
		000			56
	•	•		•	56
		00		<b>©</b>	58
	•			<b>Ø Ø</b>	58
		•		00	60
			•	<b>Ø Ø</b>	60
				000	64



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